

Claims

- [c1] 1. A multiple channel array coil for magnetic resonance imaging, comprising:
an anterior section; and
a posterior section;
said anterior and posterior sections displaced from one another about a first direction, and both of said anterior and posterior sections further comprising a left portion and a right portion displaced from one another about a second direction, with each of said left and right portions further comprising a superior coil element and an inferior coil element displaced from one another about a third direction.
- [c2] 2. The array coil of claim 1, wherein each of said superior coil elements are arranged with an associated one of said inferior coil elements in an overlapping configuration.
- [c3] 3. The array coil of claim 2, wherein each of said left and right portions are isolated from one another by transformer decoupling therebetween.
- [c4] 4. The array coil of claim 3, wherein said anterior section is isolated from said posterior section by preamplifier decoupling.
- [c5] 5. The array coil of claim 1, wherein said left and right portions of said anterior section are symmetrically aligned over said left and right portions of said posterior section.
- [c6] 6. A multiple channel cardiac array coil for magnetic resonance imaging, comprising:
an anterior section;
a posterior section; and
said anterior and posterior sections symmetrically arranged and displaced from one another about a first direction, both of said anterior and posterior sections further comprising a left portion and a right portion symmetrically arranged and displaced from one another about a second direction, with each of said left and right portions further comprising a superior coil element and an inferior coil element displaced from one another about a third direction;

wherein each of said superior and inferior coil elements are generally rectangular in shape and are formed from a generally flat, conductive material.

[c7] 7. The cardiac array coil of claim 6, wherein each of said superior coil elements are arranged with an associated one of said inferior coil elements in an overlapping configuration.

[c8] 8. The cardiac array coil of claim 7, wherein each of said left and right portions are isolated from one another by transformer decoupling therebetween.

[c9] 9. The cardiac array coil of claim 8, wherein said anterior section is isolated from said posterior section by preamplifier decoupling.

[c10] 10. The cardiac array coil of claim 6, wherein said left and right portions of said anterior section are symmetrically aligned over said left and right portions of said posterior section.

[c11] 11. A magnetic resonance imaging (MRI) system, comprising:
a computer;
a magnet assembly for generating a polarizing magnetic field;
a gradient coil assembly for applying gradient waveforms to said polarizing magnetic field along selected gradient axes; and
a radio frequency (RF) transceiver system for applying RF energy to excite nuclear spins of an object to be imaged, and for thereafter detecting signals generated by excited nuclei of said object to be imaged, said RF transceiver system further comprising:
a multiple channel cardiac array coil having an anterior section and a posterior section;
said anterior and posterior sections displaced from one another about a first direction, and both of said anterior and posterior sections further comprising a left portion and a right portion displaced from one another about a second direction, with each of said left and right portions further comprising a superior coil element and an inferior coil element displaced from one another about a third direction;
wherein signals detected by said multiple channel array coil are processed by

said computer to produce MR images of said object to be imaged.

[c12] 12. The MRI system of claim 11, wherein said multiple channel cardiac array coil is configured for sensitivity encoding (SENSE) imaging techniques.

[c13] 13. The MRI system of claim 11, wherein each of said superior coil elements are arranged with an associated one of said inferior coil elements in an overlapping configuration.

[c14] 14. The MRI system of claim 13, wherein each of said left and right portions are isolated from one another by transformer decoupling therebetween.

[c15] 15. The MRI system of claim 14, wherein said anterior section is isolated from said posterior section by preamplifier decoupling.

[c16] 16. The MRI system of claim 11, wherein said left and right portions of said anterior section are symmetrically aligned over said left and right portions of said posterior section.

[c17] 17. A method for configuring a multiple channel array coil suitable for use in sensitivity encoding for magnetic resonance imaging (MRI), the method comprising:
arranging a first set of individual coil elements into an anterior section; and
arranging a second set of individual coil elements into a posterior section;
wherein said anterior and posterior sections are displaced from one another about a first direction, and wherein both of said anterior and posterior sections are further arranged into a left portion and a right portion that are displaced from one another about a second direction, with each of said left and right portions further being arranged from a superior coil element and an inferior coil element displaced from one another about a third direction.

[c18] 18. The method of claim 17, further comprising arranging each of said superior coil elements with an associated one of said inferior coil elements in an overlapping configuration.

[c19] 19. The method of claim 18, further comprising isolating each of said left and right portions from one another by transformer decoupling.

[c20] 20. The method of claim 19, further comprising isolating said anterior section from said posterior section by preamplifier decoupling.

[c21] 21. The method of claim 17, further comprising symmetrically aligning said left and right portions of said anterior section over said left and right portions of said posterior section.

[c22] 22. A method for implementing sensitivity encoding for magnetic resonance imaging (MRI), the method comprising:
generating a polarizing magnetic field;
applying gradient waveforms to said polarizing magnetic field along selected gradient axes; and
applying RF energy generated by an RF transceiver system to excite nuclear spins of an object to be imaged, and thereafter detecting signals generated by excited nuclei of said object to be imaged, wherein said RF transceiver system further includes:
an anterior section; and
a posterior section;
said anterior and posterior sections displaced from one another about a first direction, and both of said anterior and posterior sections further comprising a left portion and a right portion displaced from one another about a second direction, with each of said left and right portions further comprising a superior coil element and an inferior coil element displaced from one another about a third direction.

[c23] 23. The method of claim 22, wherein each of said superior coil elements are arranged with an associated one of said inferior coil elements in an overlapping configuration.

[c24] 24. The method of claim 23, wherein each of said left and right portions are isolated from one another by transformer decoupling therebetween.

[c25] 25. The method of claim 23, wherein said anterior section is isolated from said posterior section by preamplifier decoupling.

[c26] 26. The method of claim 22, wherein said left and right portions of said anterior

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	